the symbols in (5) occur on this triangle in the direction contrary to that of the hands of a watch, and the displacement of the letters takes place in this direction; thus

$$CRx = \begin{matrix} A & B \\ P & Q \end{matrix}.$$

On the other hand

$$RCx = \begin{matrix} B & P \\ A & Q \end{matrix}.$$

11. In comparing any two of the 24 square arrangements of the four letters, one of the letters may by the process indicated in equation (2) be brought into the same position in each form; the forms will then differ either in the position of two of the remaining letters indicating one of the relations denoted by R, C or J or else in the position of all three letters indicating one of the relations denoted by CR or RC, discussed above.

SOLUTION OF PROB. 407 BY PROF. EDGAR FRISBY.—I notice that the solution of problem 407 [see p. 158] contains a remarkable mistake in omitting the exponent $\frac{1}{2}$. The expression is an elliptic integral; it can be reduced to a series thus:

$$\int_0^1 \frac{(1+x^4)^{\frac{1}{2}}}{(1-x)^{\frac{1}{2}}}\,dx = \int_0^1 \frac{1+\frac{1}{2}x^4-\frac{1}{2}\cdot\frac{1}{4}x^8+\frac{1}{2}\cdot\frac{1}{4}\frac{3}{6}x^{12}-\frac{1}{2}\cdot\frac{1}{4}\cdot\frac{3}{6}\frac{5}{8}x^{16}+\cdots}{\sqrt{(1-x^2)}}\,dx.$$

Integrating each term by parts and only retaining the last term of each series, as the other terms vanish at both limits, we have

$$\int_0^{\frac{\pi}{2}} (1+\cos^4\theta)^{\frac{1}{2}}d\theta = \frac{\pi}{2}\left\{ \frac{1}{2}\frac{1.3}{2.4} - \frac{1.1}{2.4}\frac{1.3.5}{2.4.6}\frac{7}{8} + \frac{1.1.3}{2.4.6}\frac{1.3.5.7.9.11}{2.4.6.8.10.12}\cdots \right\}.$$

SOLUTIONS OF PROBLEMS IN NUMBER FIVE.

SOLUTIONS of problems in No. 5 have been received as follows:

From Prof. L. G. Barbour, 412; Alex. S. Christie, 411; Prof, W. P. Casey, 409, 412, 416; Geo. Eastwood, 413, 416, 417; C. E. Everett, 409, 410, 415, 416; Prof. Edgar Frisby, 409, 411, 415; Wm. Hoover, 409, 411, 413 416; L. S. Hulbert, 412; E. H. Moore, Jr., 416; Prof. P. H. Philbrick, 409, 414, 415, 416; A. L. Parman, 409; Prof. E. B. Seitz, 409; Prof. J. Scheffer, 409, 410, 411, 416; Prof. C. M. Woodward, 409 410, 413; R. S. Woodward, 413.

[Solutions of 401, 402, 403 and 406 by Chas. E. Everett and Prof. Casey, respectively, were received too late for acknowledgment in No. 5.]